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| 10/606,974 | 06/26/2003 | Dieter Klingel | DKT00071 | 6454 |

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03/11/2005

Attention: Patent Docket Administrator
BorgWarner Inc.
Powertrain Technical Center
3800 Automation Avenue, Suite 100
Auburn Hills, MI 48326-1782

EXAMINER

TRIEU, THAI BA

ART UNIT PAPER NUMBER

3748

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|---------------------------------|--|
| Office Action Summary | Application No. 10/606,974 | Applicant(s) KLINGEL, DIETER | |
| | Examiner Thai-Ba Trieu | Art Unit 3748 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 28-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30 and 31 is/are allowed.
- 6) ☒ Claim(s) 1,28,29 and 32-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Amendment filed on December 27, 2004. Applicant's cooperation in correcting the informalities in the drawing and specification is appreciated. Applicant's cooperation in amending the claims to overcome the claim objections relating to informalities as well as indefinite claim language is also appreciated. Claims 1, 30, 33, 41, 44, 46, and 50 were amended; claim 54 was added; and Claims 2-27 were cancelled.

Specification

The disclosure is objected to because of the following informalities:

In Paragraph [00014], lines 3, 6 and 7, ***“patent claim 1”***, ***“patent claim 18”***, and ***“patent claim 24”*** should be deleted, since claim may be amended or cancelled during the prosecution of the instant application, and therefore, is not an appropriate characterization of the invention; and since claims 18 and 24 were cancelled by the preliminary amendments filed on June 26, and November 19, 2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 29, 33, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Treuil (Patent Number 4,096,697).

Treuil discloses a motor brake device for a turbocharged internal combustion engine (1),

with an at least two-stage charge system (7,8), which includes at least one high-pressure stage (7) as well as at least one low-pressure stage (8) connected in the exhaust gas flow downstream of the high-pressure stage (7) and upstream in the charge air flow,

with at least one exhaust gas line (5, 11, 14) connected with outlet channels (6) of the internal combustion engine (1) and connected downstream of the internal combustion engine (1),

with at least one first closing body (48, 51), which provided in an area of the exhaust gas line downstream of the high-pressure stage (7) and/or the low-pressure stage wherein the first closing body (48) is constructed in such manner, that the exhaust gas flow-through and thereby the thereupon dependent pressure in the exhaust gas line (5,11, 14) is so variable, that thereby the motor brake power can be variably adjusted as required (See Figure 1, Column 2, lines 20-62, Column 8, lines 29-68, and Column 9, lines 1-22);

wherein the first closing body is a control valve (48), an exhaust gas brake flap or an exhaust gas throttle valve (See Figure 1);

wherein the turbocharger (7,8) includes the following elements:

- the high-pressure pressure turbine stage (7) includes one high-pressure turbine (7b) in the exhaust gas line (5, 11) and at least one high-pressure compressor (7a) in the charge air side, which are coupled to each other via an intermediate common shaft (Not shown) (See Figure 1);

- the low-pressure stage (8) includes at least one low-pressure turbine (8b) in the exhaust gas line (5, 11) and at least one low-pressure compressor (8a) in the charge air side, which are coupled to each other via a second common shaft (Not shown) located between them(See Figure 1);

- at least one charge air cooler (17, 23) is provided , which is located in the charge air side (15, 19, 22) and the charge air inlet (3) of the internal combustion engine (1);

wherein at least one closing body (48) is a valve and/or restrictor and/or flap and/or slide valve (See Figure 1).

Claims 1, 28, 33-34, 39-42, 44, 46-52, and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt et al. (Patent Number 198 53 360 A1).

Regarding Claims 1, 28, 33-34, and 39-42 Schmidt discloses a motor brake device for a turbocharged internal combustion engine (1),

with an at least two-stage charge system (2,10), which includes at least one high-pressure stage (10) as well as at least one low-pressure stage (2) connected in the

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exhaust gas flow downstream of the high-pressure stage (10) and upstream in the charge air flow,

with at least one exhaust gas line (6, 19, 23) connected with outlet channels (Not Numbered) of the internal combustion engine (1) and connected downstream of the internal combustion engine (1),

with at least one first closing body (16), which provided in an area of the exhaust gas line downstream of the high-pressure stage (10) and/or the low-pressure stage wherein the first closing body (16) is constructed in such manner, that the exhaust gas flow-through and thereby the thereupon dependent pressure in the exhaust gas line (6, 19, 23) is so variable, that thereby the motor brake power can be variably adjusted as required (See Figure 1, Column 1, lines 45-68, Column 2, lines 1-19, Column 3, lines 27-68, and Column 4, lines 1-33);

wherein the first closing body is a control valve (16) is controllable or adjustable (See Figure 1);

wherein the turbocharger (2,10) includes the following elements:

- the high-pressure pressure turbine stage (10) includes one high-pressure turbine (11) in the exhaust gas line (6) and at least one high-pressure compressor (12) in the charge air side, which are coupled to each other via an intermediate common shaft (13) (See Figure 1);
- the low-pressure stage (2) includes at least one low-pressure turbine (3) in the exhaust gas line (6) and at least one low-pressure compressor (4) in

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the charge air side, which are coupled to each other via a second common shaft (5) located between them (See Figure 1);

- at least one charge air cooler (8) is provided, which is located in the charge air side (7) and the charge air inlet (Not shown) of the internal combustion engine (1) (See Figure 1);

wherein at least one of the turbines (11, 3) is a turbine with variable geometry (9) (See Figure 1);

wherein at least one closing body (a rotary valve 16) is a valve and/or restrictor and/or flap and/or slide valve (See Figure 1);

wherein a control device (25) is provided, which provides a control or adjustment signal, via which the first closing body (16) and/or the second closing body and/or the flow through restrictor and/or the turbines (3) with variable turbine geometry (9) are adjustable or controllable (via 30, 31, 29) (See Figure 1);

wherein the control device (25) is a component of the motor control unit (ECU), which includes a program controlled unit; a microprocessor or microcontroller (See Figure 1); and

wherein the control or adjusting signal (30, 31, 29) is an electric or pneumatic or hydraulic signal (See Figure 1).

Regarding claims 44 and 46-49, Schmidt discloses a process for operating a motor brake device for turbocharged internal combustion engine (1) with an at least two-stage charge system (2, 10), which includes at least one high-pressure stage (10)

as well as at least one low-pressure stage (2) connected in the exhaust gas flow downstream of the high-pressure stage (10) and upstream in the charge air flow, with at least one exhaust gas line (6, 19, 23) connected with outlet channels (Not shown) of the internal combustion engine (1) and connected downstream of the internal combustion engine (1), and with at least one first closing body (16), which is provided in an area of the exhaust gas line downstream of the high-pressure stage (10) and/or the low-pressure stage (2), wherein the first closing body (16) is constructed in such a manner, that the exhaust gas flow-through and thereby the thereupon dependent pressure (via 26, 27, 28) in the exhaust gas line (6) is so variable, that thereby the motor brake power can be variably adjusted as required,

wherein said process comprises:

determining a brake mode, and

adjusting in the exhaust gas line (6) located ahead of the high-pressure turbine (10) a first pressure (via 26, 27, 28) via a control device (25) to a predetermined value depending upon the brake mode (See Figure 1, Abstract, *Note that the method/process as claimed would be inherent during the normal use and operation of the Schmidt device as disclosed*);

the first pressure (via 26) and/or the second pressure (P2S) being so adjusted that it is kept constant during the braking operation of the turbocharger (2, 10) (See Figure 1); and

the adjustment of the first pressure (via 26, 27, 28) and/or the second pressure (P2s) being achieved by influencing the flow-through cross-section of a exhaust gas line

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(6) located behind the low-pressure turbine (3), in that the closing body (16) is opened more or less strongly depending upon the desired flow through cross section (See Figure 1);

the adjustment of the first pressure (via 26, 27, 28) and/or the second pressure (P2S) being adjusted by influencing the flow through cross-section of a channel of at least one turbine (11,3), in that the turbine channel is more or less strongly opened depending upon the desired flow through cross-section (See Figure 1); and

the adjustment of the first pressure (P1) and/or the second pressure (P2S) is adjusted by influencing the flow through cross-section of at least additional closing bodies (24) in that the second closing body (24) is more or less strongly opened depending upon the desired flow through cross-section. (See Figure 1, Column 1, lines 45-68, Column 2, lines 1-19, Column 3, lines 27-68, and Column 4, lines 1-33).

Regarding claims 50-52, Schmidt discloses an internal combustion engine (1) comprising:

a motor block, which includes at least one cylinder (Not Shown) and which includes at least one charge air inlet (7) and at least one exhaust gas output (6), and as brake device, a charge air system (2, 10) with an at least two-stage charge system (2,10), which includes at least one high-pressure stage (10) as well as at least one low-pressure stage (2) connected in the exhaust gas flow downstream of the high-pressure stage (10) and upstream in the charge air flow, with at least one exhaust gas line (6, 19, 23) connected with the outlet channels (Not shown) of the internal

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combustion engine (1) and connected downstream of the internal combustion engine (1), and with at least one first closing body (16), which is provided in an area of the exhaust gas line (6) downstream of the high-pressure stage (10) and/or the low-pressure stage (2), wherein the first closing body (16) is constructed in such a manner, that the exhaust gas flow-through and thereby the thereupon dependent pressure (via 26, 27, 28) in the exhaust gas line (6) is so variable, that thereby the motor brake power is variably adjusted;

wherein the charge air system (2, 10) is the turbocharger (2, 10); and wherein the internal combustion engine (1) is a gasoline motor or a diesel motor (See Figure 1, Column 1, lines 45-68, Column 2, lines 1-19, Column 3, lines 27-68, and Column 4, lines 1-33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Treuil (Patent Number 4,096,697) or Schmidt et al. (Patent Number DE 198 53 360 A1), in view of Pfluger (Patent Number DE 198 37 978 A1 or US 6,378,308 B1).

Treuil/Schmidt discloses the invention as recited above; however, Treuil/Schmidt fails to disclose a twin flow turbine, a bypass line, and a second closing body.

Pfluger teaches that it is conventional in the charged internal combustion engine art, to utilize an exhaust gas recirculation line (86) at least one turbine (23a, 23b, 31) of the turbocharger (20,30) being a twin flow turbine (23a, 23b), in which two turbine wheels are arranged parallel to each other (See Figure 1a, 3, 7); the two turbine wheels of the twin flow turbine (23a, 23b) having an exhaust gas channel with varying flow through cross-section; and each high-pressure turbine (23a, 23b) being provided in parallel arrangement with at least one bypass line (Not Numbered) with a respective therein associated second closing body (70, 71); and wherein the respective second closing bodies (70, 71) provided respectively in the bypass lines (Not Numbered) of the twin flow turbine (23a, 23b) are designed to be controllable or adjustable independently of each other (See Figure 1a, 3, and 7; Column 3, lines 15-65, and Column 4, lines 1-38 of DE 198 37 978 A1; or Column 3, lines 45-67, and Column 4, lines 1-51 of US 6,378,308 B1)

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a twin flow turbine and a bypass line, as taught by Pfluger, since the use thereof would have improved the control of the exhaust gas flow in the charged internal combustion engine having the motor brake device.

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Treuil (Patent Number 4,096,697) or Schmidt et al. (Patent Number DE 198 53 360 A1).

Treuil/Schmidt discloses the invention as recited above; however, Treuil/Schmidt fails to disclose at least one of the closing bodies or the flow through restrictor being integrated in the housing of the turbocharger.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to at least one of the closing bodies or the flow through restrictor being integrated in the housing of the turbocharger, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (Patent Number DE 198 53 360 A1), in view of Sumser et al (Patent number DE 199 31 009 A1).

Schmidt discloses the invention as recited above; however, Schmidt fails to disclose the first pressure during braking operation being adjustable and greater than a second pressure in the charge air line located downstream of the high-pressure compressor.

Sumser teaches that it is conventional in the charged internal combustion engine art having an engine brake system, to utilize the first pressure during braking operation being adjustable and greater than a second pressure in the charge air line located downstream of the high-pressure compressor (See Abstract, Column 3, lines 38-68, and Column 4, lines 1-18).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the first pressure during braking operation being adjustable and greater than a second pressure in the charge air line located downstream of the high-pressure compressor, as taught by Sumser, since the use thereof would have increased the performance efficiency of the Schmidt charged internal combustion engine.

Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (Patent Number DE 198 53 360 A1), in view of Yanagihara (Patent number JP 04017714 A).

Schmidt discloses the invention as recited above; however, Schmidt fails to disclose at least one catalyst being provided and located in line and downstream of the turbocharger.

Yanagihara teaches that it is conventional in the charged internal combustion engine art, to utilize at least one catalyst (86) being provided and located in line and downstream of the turbocharger (17, 18) (See Figure 1).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized at least one catalyst being provided and located in line and downstream of the turbocharger, as taught by Yanagihara, to reduce the exhaust emissions of the Schmidt turbocharged internal combustion engine.

Allowable Subject Matter

Claims **30-32** are allowed.

Response to Arguments

Applicant's arguments filed December 27, 2004 have been fully considered but they are not persuasive. Accordingly, claims 1 and 28-53 are pending.

1. Regarding Applicant's arguments set forth on Pages 18-22 with respect to the rejection of claims 1, 29, 33, and 39 under 35 U.S.C. 102(b) as being anticipated by Treuil (Patent Number 4,096,697), applicant asserts that there is no teaching **a motor brake assist device** for the two stage turbocharged internal combustion engine in Treuil reference.

Examiner respectfully disagrees with the applicant because:

a. Firstly, the recitation of "wherein the first closing body (30) is constructed in such a manner, that the exhaust gas flow-through and thereby the thereupon dependent pressure (P1) in the exhaust gas line (20, 20A, 20B, 21, 22) is so variable, that thereby the motor brake power is variably adjusted as required." is considered as a function language.

b. Secondly, the prior art to Treuil discloses all the structural components of a system, which are identical to those of the instant invention.. Therefore, the Treuil system is capable of performing the same desired function as the instant invention having been claimed in claim 1.

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c. Thirdly, the prior art to Treuil discloses a flap valve (48), and the member 51 for selectively controlling the flow rate of the exhaust gases (See Column 8, lines 57-68, and Column 9, lines 1-22). when the flap valve (48) and the member (51) are used to control the exhaust gases flow rate and when they are in closed position, the back pressure of the exhaust gases is capable of developing and being sufficient to brake the engine.

d. Finally, claims, having begun with the preamble "**A motor brake device**", are mere intended use of the applicant, since the applicant would like to disclose a system having two-stage charger and an exhaust gas outlet channel with a closing body to perform a function as a motor brake device, which is considered as a desired result.

In conclusion, when the prior art to Treuil discloses all the identical components, if being compared to the instant invention, the Treuil device is capable of performing the same function as the instant invention does.

2. Regarding Applicant's arguments set forth on Pages 22-23 with respect to the rejection of claims 1, 28, 33-34, 39-42, 44, and 46-52 under 35 U.S.C. 102(b) as being anticipated by Smidth et al. (Patent Number DE 198 53 360 A1), applicant asserts that there is no teaching a closing body in the exhaust pipe line downstream of the high or low pressure stages in Smidth reference.

Examiner respectfully disagrees with the applicant because:

a. Firstly, in claim 1, applicant has claimed that “at least one first closing body being provided in an area of the exhaust gas line downstream of the high pressure stage and/or the low pressure stage”. However, Applicant does not disclose the closing body, which is positioned in the exhaust pipe line as applicant sets forth in the arguments on page 22.

b. Secondly, the recitation of “wherein the first closing body (30) is constructed in such a manner, that the exhaust gas flow-through and thereby the thereupon dependent pressure (P1) in the exhaust gas line (20, 20A, 20B, 21, 22) is so variable, that thereby the motor brake power is variably adjusted as required.” is considered as a function language.

c. Thirdly, the prior art to Smidth discloses all the structural components of a system, which are almost identical to those of the instant invention. Additionally, the closing body of the instant invention is interpreted as vanes of the Smidth VTG, since vanes of the Smidth VTG are used as braking device, positioned downstream of the high pressure stage, being in the exhaust gas line and having the same function of the closing device . Therefore, the Smidth system is capable of performing the same desired function as the instant invention having been claimed in claim 1.

In conclusion, when the prior art to Smidth et al. discloses all the almost identical components, if being compared to the instant invention, the Smidth device is capable of performing the same function as the instant invention does.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
March 07, 2005



Thai-Ba Trieu
Primary Examiner
Art Unit 3748